LOW CARBON HYDROGEN SUPPLY 2 STAKEHOLDER ENGAGEMENT DAY

The presentation will start at 10:00

This event will be recorded

Today's Agenda

Item	Subject		Presenter
1.	Objectives of the session		Philip Cohen
2.	Low Carbon Hydrogen Supply 2		Philip Cohen
3.	General procurement procedure		Julie-Anne De Thomasis
4.	Coffee Break		
5.	Net Zero Hydrogen Fund (NZHF)		Corrine Ribbons
6.	Next steps / Wrap up		Philip Cohen
7.	Final Q&A session		Philip Cohen
	End		

Objectives

- Outline the Low Carbon Hydrogen Supply 2 Competition
- Explain how to apply and how the competition will work
- Outline the next steps
- Collect questions

BEIS NZIP PROGRAMME: LOW CARBON HYDROGEN SUPPLY 2 COMPETITION

Philip Cohen

Competition Programme Manager

Science and Innovation for Climate and Energy

BEIS

8 June 2021

Low Carbon Hydrogen Supply 1 Competition

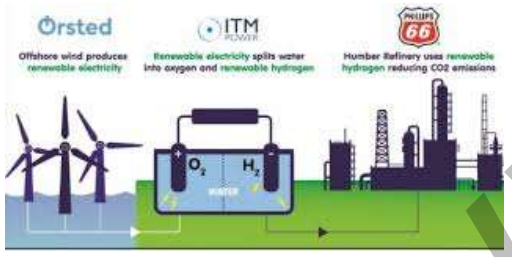
HS1 has been instrumental in enabling the current ambitious hydrogen agenda

Phase 1: £5m Feasibility – 43 applications requesting >£15m funding; awarding contracts to 13 feasibility studies

Phase 2: £27m Demonstration – 12 Applications (locked to projects in Phase 1) requesting >£70m funding

HyNet (£7.5m)

A FEED study to develop a 300MW methane reformer based on Johnson Matthey gas heated reformer technology.
HyNet have gone on to form a joint venture with Essar.



Gigastack (£7.5m)

Develop detailed plans to produce hydrogen via electrolysis from Orsted Hornsea Windfarm using a new ultra-low cost 5MW electrolyser stack, with the intent to supply this to Phillips 66's Humber Refinery in the future.

Low Carbon Hydrogen Supply 1 Competition – cont'd

Dolphyn (£3.1m)

Detailed designs for a floating semi-submersible platform with integrated wind turbine, desalination facilities and PEM electrolysis, ready for final investment decision.

The Engineer for Overall Innovation Project of the Year: 2020.

HyPER

HyPER (£7.4m)

Developing new process to offer low carbon hydrogen production (via sorbent enhanced steam reforming) with integrated CO2 separation suitable for transport, utilisation and storage.

acorn H2 Pale Blue Dot.

Acorn Hydrogen (£2.7m)

Create a replicable process for clean hydrogen production based around Johnson Matthey's Low Carbon Hydrogen technology, in North East Scotland's existing energy supply chain.

Acorn recently received a strategic investment by Macquarie Group.

What is Low Carbon Hydrogen Supply 2?

It is....

- An innovation competition supporting the development of novel hydrogen supply solutions (TRL 4-7)
- Small Business Research Initiative/ Pre-commercial procurement – will fund 100% of eligible project costs, to develop, build and trial a novel hydrogen supply solution

It is not....

- The £240m Net Zero Hydrogen Fund
- A fund to support the development of end to end hydrogen projects/ non innovative projects

This competition will only support demonstration projects where the core technology being developed has not been previously operated widely or in a commercial environment

Note: We are taking feedback from this session so some details may change by the time the ITT published. Applicants are advised to read the ITT, which will be one of the schedules in the contract.

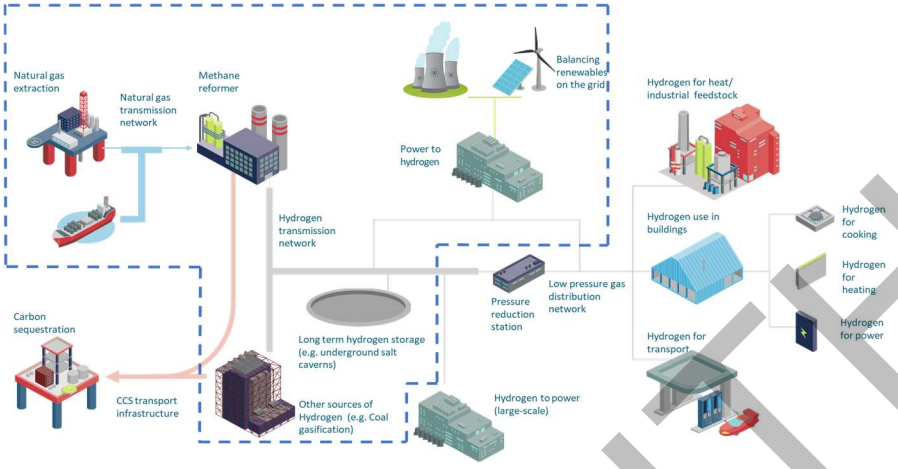
SBRI

What is an SBRI?

- Small Business Research Initiative (it is open to organisations of any size)
- Pre-commercial procurement – aimed at solutions which are not yet ready for the commercial market
- Projects must be 100% funded by BEIS
- Sharing of risks and benefits – suppliers receive financial support and retain arising IP (certain rights of use retained by BEIS). SBRI contracts are therefore expected to be priced below market rates, reflecting these benefits to the supplier

Objectives and Scope

To catalyse innovation in the supply of hydrogen, reducing the costs, bringing new solutions to the market, and ensuring that the UK continues to develop world leading hydrogen technologies for a future hydrogen economy



Reduce costs of hydrogen supply

support advances in hydrogen supply solutions (both incumbent and challenger solutions).

Increase Carbon Saving potential

support the development of technologies which will improve resource efficiency

Develop novel technologies to increase market competition

enabling a diversification in hydrogen supply solutions.

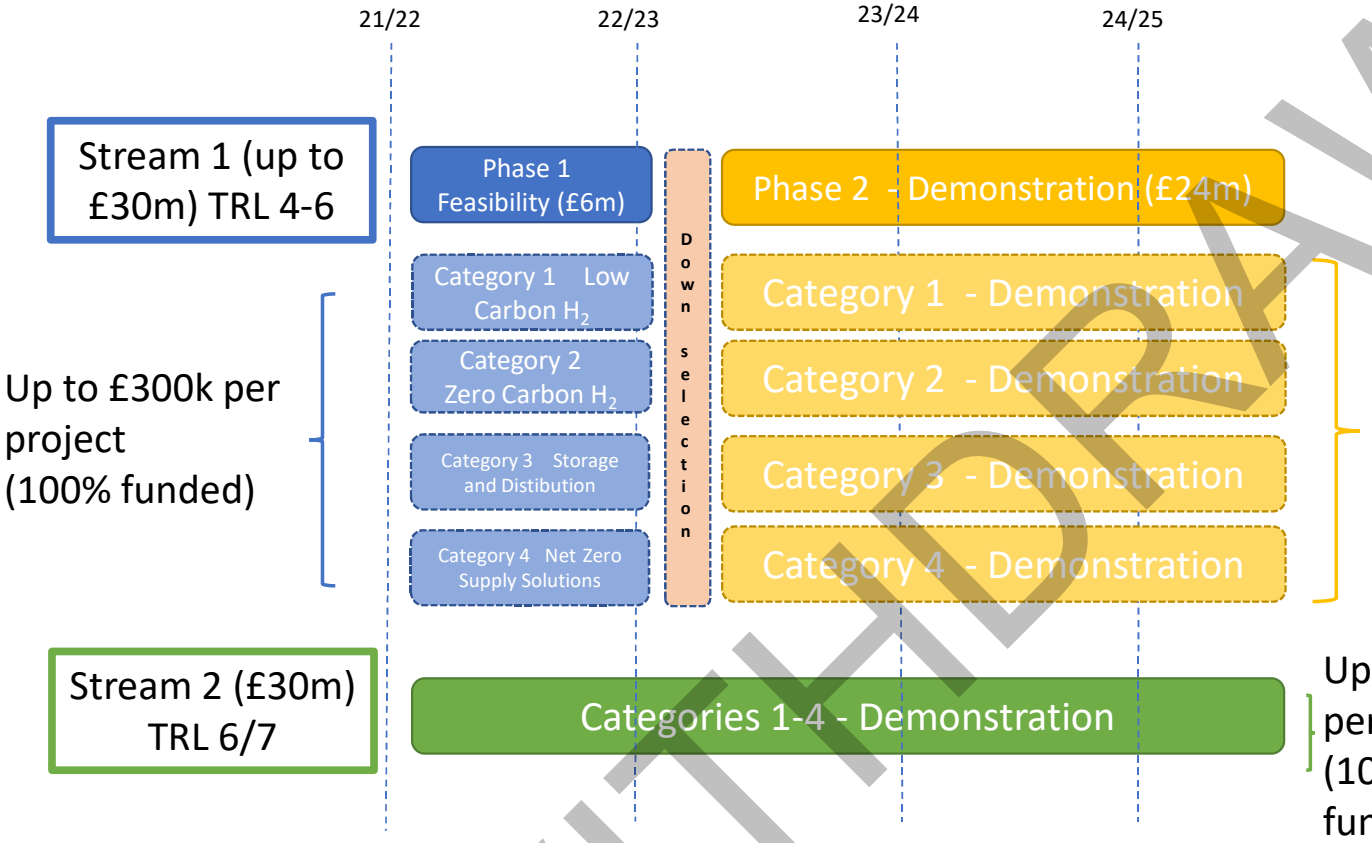
Knowledge building to inform policy development

produce a number of reports which will provide market insight.

Develop the knowledge and skills required to meet net zero

enable the development of the skills and experience required across the supply chain.

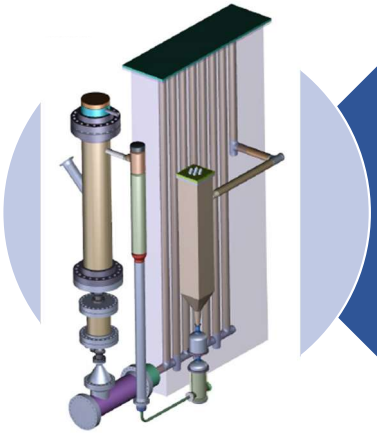
Overview



Stream 1 - Supporting "challenger" hydrogen supply solutions. Increasing competition in the market place, maximising cost reduction and export opportunities

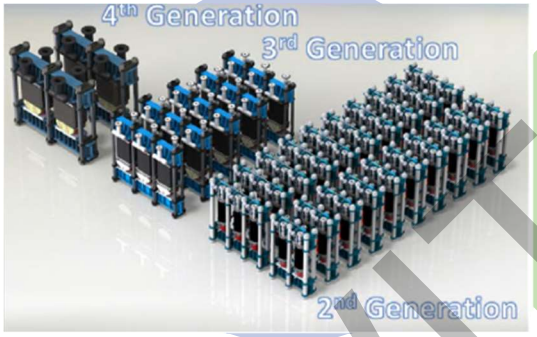
Stream 2 - Supporting more developed projects, ensuring UK hydrogen Supply solutions remain competitive, cost reduction for solutions deployed in the 2020s, and creating a pipeline of projects for NZHF

What type of projects will be supported by this competition?



CATEGORY 1

Low carbon hydrogen production (residual direct emissions even when coupled with CCUS) – projects could include, development of new reformation technologies: waste gasification, industry derived hydrogen, improvements to ancillary equipment/ materials (including pressure swing adsorber, water gas shift, air separation unit, and catalysts).



CATEGORY 2

Zero carbon hydrogen production (no directly produced emissions) – projects could include: electrolysis, high temperature processes, biological hydrogen processes, solar, automation of electrolysis production, green ammonia production, and new materials.

What type of projects will be supported by this competition?

CATEGORY 3

Hydrogen storage and distribution – projects could include: the round trip for liquid organic hydrogen carriers, ammonia, or metal organic frameworks, it could also include gas separation (methane/hydrogen), transition of gas handling facilities (import/export).

CATEGORY 4

Net zero hydrogen supply solutions – projects could include: solutions that enable greater rollout of low carbon hydrogen, enable improved distribution of hydrogen to areas of high demand, hydrogen upgrading, improved controls, and wider solutions where hydrogen supply could support the transition to net-zero.

Other live BEIS Competitions

- CCUS Innovation 2.0 competition (£20m)

https://www.gov.uk/government/publications/ccus-innovation-20-competition

- Longer Duration storage competition (£67m)

https://www.gov.uk/government/publications/longer-duration-energy-storage-demonstration-competition-apply-for-stream-1-pre-commercial-demonstrator-grants

https://www.gov.uk/government/publications/longer-duration-energy-storage-demonstration-competition-apply-for-stream-2-first-of-a-kind-prototypes-contracts

Stream 1 Overview (TRL 4-6)

Phase 1: Feasibility Study (up to £6m)

Oct 2021 – July 2022

- Develop the hydrogen supply technology/enabling technology concept;
- Support development of the project team's understanding of the core and ancillary technology, the performance of the technology, the market potential, the route to market and costs and delivery plan for Phase 2;
- **Maximum £300k** funding available per project;
- Projects to be completed by **end July 2022**

Phase 2: Demonstration Study (up to £24m)

Sep 2022 – Mar 2025

- Only those applicants who been successful for Phase 1 and have completed their feasibility studies can apply for Phase 2;
- Complete a pilot demonstration developed in Phase1;
- Demonstrate the opportunity including build, trial, decommissioning and knowledge dissemination;
- **Maximum £6m** funding available per project with a **maximum £3m** for engineering design (inc. modelling, FEED etc);
- Projects to be completed by **end March 2025**

Funding will be split equally between categories and assigned to projects ranked in order of merit. Any remaining budget in a category will be transferred to a central pot and funding will be assigned to remaining projects by order of merit until the budget has been exhausted

Stream 2 Overview (TRL 6-7)

Demonstration Study (up to £30m): Oct 2021 – March 2025

- Open to all categories
- Complete a pilot demonstration for a Low Carbon Hydrogen Supply solution
- Support projects to demonstrate the opportunity including build, trial, decommissioning and knowledge dissemination
- **Maximum £10m** funding available per project with a **maximum £5m** for engineering design (inc. modelling, FEED etc);
- Projects to be completed by **end March 2025**

- Projects applying to Stream 2 should already have considered a delivery plan for a demonstration project and have a good understanding of their market.
- Funding will be assigned in order of merit

Technology Exclusions

Funding will NOT be provided for projects where the technology development focuses on:

- End-use technologies (for example boilers and other hydrogen appliances)
- Technologies where the core technology has been previously been operated commercially (in UK or Internationally)
- Power generation from hydrogen (for example fuel cells or CCGT)
- Gas-grid systems (onshore)
- Novel CCUS technologies which aren't intrinsically linked into the hydrogen production process

Eligibility for Funding (1 of 3)

Item	Subject	Eligibility
1.	Technology Categorisation	The technology must be in scope for the category applied for (Stream 1) or must be in scope
2.	Innovation and technology readiness	TRL 4 to 6 at the **start** of the project (Stream 1) TRL 6/7 at the **start** of the project (Stream 2)
3.	Retrospective Work	BEIS is unable to fund retrospective work on projects
4.	Additionality	Evidence must be provided to show that innovation would not progress without public funding

Eligibility for Funding (2 of 3)

Item	Subject	Eligibility
6.	Contract size	Stream 1: Maximum funding requested must be £300k or below (minimum of £50k) for Phase 1 and £6m or below for Phase 2. Stream 2: Maximum funding requested must be £10m or below
7.	Eligible project costs	Projects requesting funding for commercialisation activities are not eligible. SBRI funding only available for R&D activities of an innovative process, material, device, product, or service prior to commercialisation.
8.	Project end date	Stream 1 (Phase 1) final reports must be submitted before end of July 2022 Stream 1 (Phase 2) demonstration projects must be completed by end March 2025 Stream 2 demonstration projects must be completed by end March 2025
9.	Risk benefit sharing	Projects receive financial support and retain any intellectual property generated, with certain rights of use retained by BEIS. Project outputs are also expected to be shared widely and publicly and project teams are not permitted to include profit in the eligible project costs.
10.	Applicants and projects team make-up	Projects are expected to be delivered by a project team or consortium. A single project application must be submitted by the lead project member

Eligibility for Funding (3 of 3)

Item	Subject	Eligibility
11.	Delivering multiple projects	If project consortium member(s) are part of multiple successful applications they must be able to deliver on them and they must not have applied for funding for the same piece of work more than once
12.	Multiple applications	If the intention is to submit multiple applications, lead organisations may only enter **one** application into each Category as the project lead. A technology provider/OEM are limited to one application for a particular technology/solution requiring development per Category.
13.	Prompt Payment (Eligibility criterion for Stream 1 Phase 2 and Stream 2 only)	For Stream 1 Phase 2 and Stream 2, where contracts are of £5m or more, if you intend to use a supply chain for this contract, you must demonstrate you have effective systems in place to ensure a reliable supply chain.

ITT and Application Form

- **Stream 1 (Phase 1) and Stream 2 will have Separate ITTs and application forms** published **22nd June 2021**; Applications are due in by **midday 9th August 2021.**
- Applications will be entered via an online form, you **will need to register before 2nd August 2021** to gain access to the online form. We recommend:
  - Registering as soon as possible
  - Editing the documents using a downloadable word version
  - All applications must be submitted via the online application form with any supporting documents uploaded. **Further details will be provided in the ITT**
  - Don’t leave it to the last minute to upload your application, the online form asks some further information that requires completion
- Previous correspondence relating to Expressions of Interest or attendance today does **not** result in automatic registration.

Applicant Guidance

- Applications from consortia are welcome
- A single project application must be submitted by the lead project member
- Only one submission for each separate project application is permitted, and all consortium partners are required to sign the completed application form
- Consortium members/sub-contractors may be part of multiple applications
- The lead organisation to manage any arrangements with regards to conflict of interest

Assessment Criteria

Criterions	
1	**Innovative, cost-effective low carbon Hydrogen Supply approach** - what is your technology, what will you demonstrate
2	**Performance of hydrogen supply solution** – how does your technology compare, how can it scale
3	**Social Value** - development plan, carbon saving, UK job/skills creation, development of a UK supply chain, and dissemination
4	**Project financing** – project costs, value for money, costs saving compared to exclusive development
5	**Project delivery** – Team, project plan and risks

To be eligible for funding – Applicants must score **60% or higher in their application**

GENERAL PROCUREMENT PROCEDURE

Julie-Anne De Thomasis

Commercial Lead

Science and Innovation for Climate and Energy

BEIS

8 June 2021

SBRI Procurement Process

Terms and Conditions

- Stream 1 (Phases 1& 2), and Stream 2 projects will each have slightly different T&Cs
  - Standard termination clauses will apply (including termination at convenience by either party with 28 working days' notice)

- Suppliers retain the rights over any IP arising from the project
  - BEIS reserves the right to take up arising IP if it has not been "commercially exploited" by the supplier
    - For Stream 1 projects within 5 years of contract commencement
    - For Stream 2 projects within 3 years of contract commencement

SBRI Procurement Process – cont'd

Terms and Conditions

- For Stream 1 (Phase 1): Liability is limited to twice the contract value (Except in relation to death or personal injury)
- For Stream 1 (Phase 2): Liability will be increased to £4m or twice the contract value, whichever is greater
- For Stream 2 - Liability will be £4m or twice the contract value, whichever is greater

Review and Moderation

All applications will be assessed by **three separate assessors and scores moderated**. BEIS will use a third-party external consultancy to support this process led by Mott MacDonald, which includes companies such as Ricardo

Applicants that **fail any part of the eligibility criteria** will not be assessed further

Feedback to applicants will be provided by **end September 2021***

* These dates are dependent on the number of eligible applications received

Transparency

In the interests of fairness, today's questions and answers will be **anonymised and published with the respective ITTs**

No commercial-in-confidence information will be shared

Terms and Conditions

Although BEIS SBRI T&Cs are expected to form the basis of the contract, we will **publish the final version of the T&Cs at the same time as the ITT**

They will be final and any applications submitted on condition that T&Cs are amended will be effectively submitting a non-compliant application

If you have questions about the T&Cs you can **ask them today or during the ITT Q&A window** (details on ITT Q&A window to be included in the ITT)

All Q&A raised during the ITT publication period will be **anonymised and published on the competition website and Contracts Finder**

BREAK

Back at 11.25

NET ZERO HYDROGEN FUND (NZHF)

Corinne Ribbons

Policy Delivery Manager

Net Zero Hydrogen Fund

BEIS

8 June 2021

NZHF Update:

1. Background – A new ambition for low carbon hydrogen
2. Scheme design – High level assumptions
3. Interactions with HySupply2
4. Next steps and questions

1. **Background:** A new ambition for low carbon hydrogen

Working with industry, the UK is aiming for **5GW of low carbon hydrogen production capacity by 2030**

NZHF: capital co-investment that can establish the technology to deliver a major boost to production capacity

£240m Net-Zero Hydrogen Fund confirmed to 2025, to support low carbon hydrogen production

Hydrogen Strategy to be published alongside consultation on the Hydrogen Business Model and the NZHF

Clear statement of intent in late 2020

Summer 2021

Ministers are clear that UK is well positioned to take a **'twin track'** approach and bring forwards different production technologies

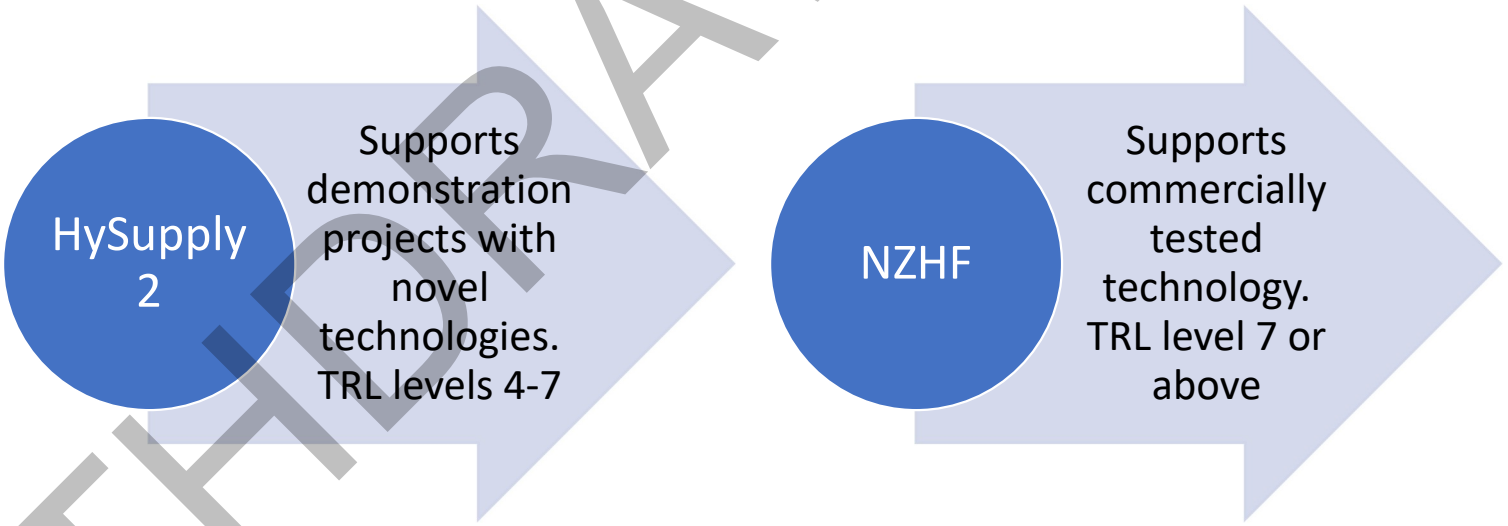
2. Scheme design: High level assumptions

- £240m agreed for Fund for the period 21/22 24/25, potential for further funding up to 2030
- Fund was envisaged as capital co investment, but we are also considering DEVEX support
- New low carbon hydrogen production
- Core technology that is proven and has been tested in a commercial environment
- Expanded fund to replace LCHF
- Intention to support green & blue hydrogen
- Contribute towards 5GW ambition

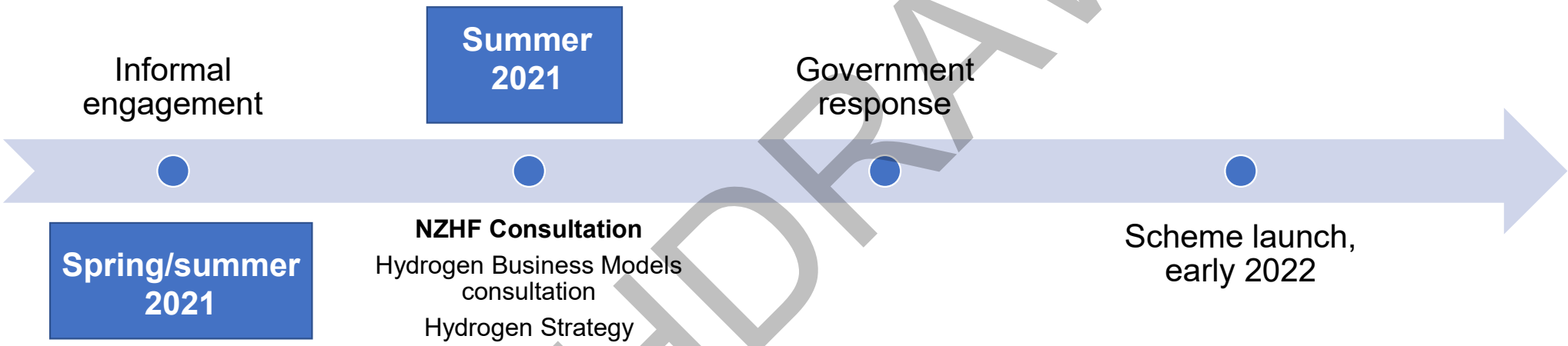
Fund will work alongside **business models** and the revenue mechanism to scale up the UK hydrogen economy

3. Interactions with HySupply 2

The NZHF will aim to pick up where HySupply's innovation funding ends, and supports the commercial deployment of hydrogen technologies



4. Next steps



NEXT STEPS: LOW CARBON HYDROGEN SUPPLY 2 COMPETITION

Philip Cohen

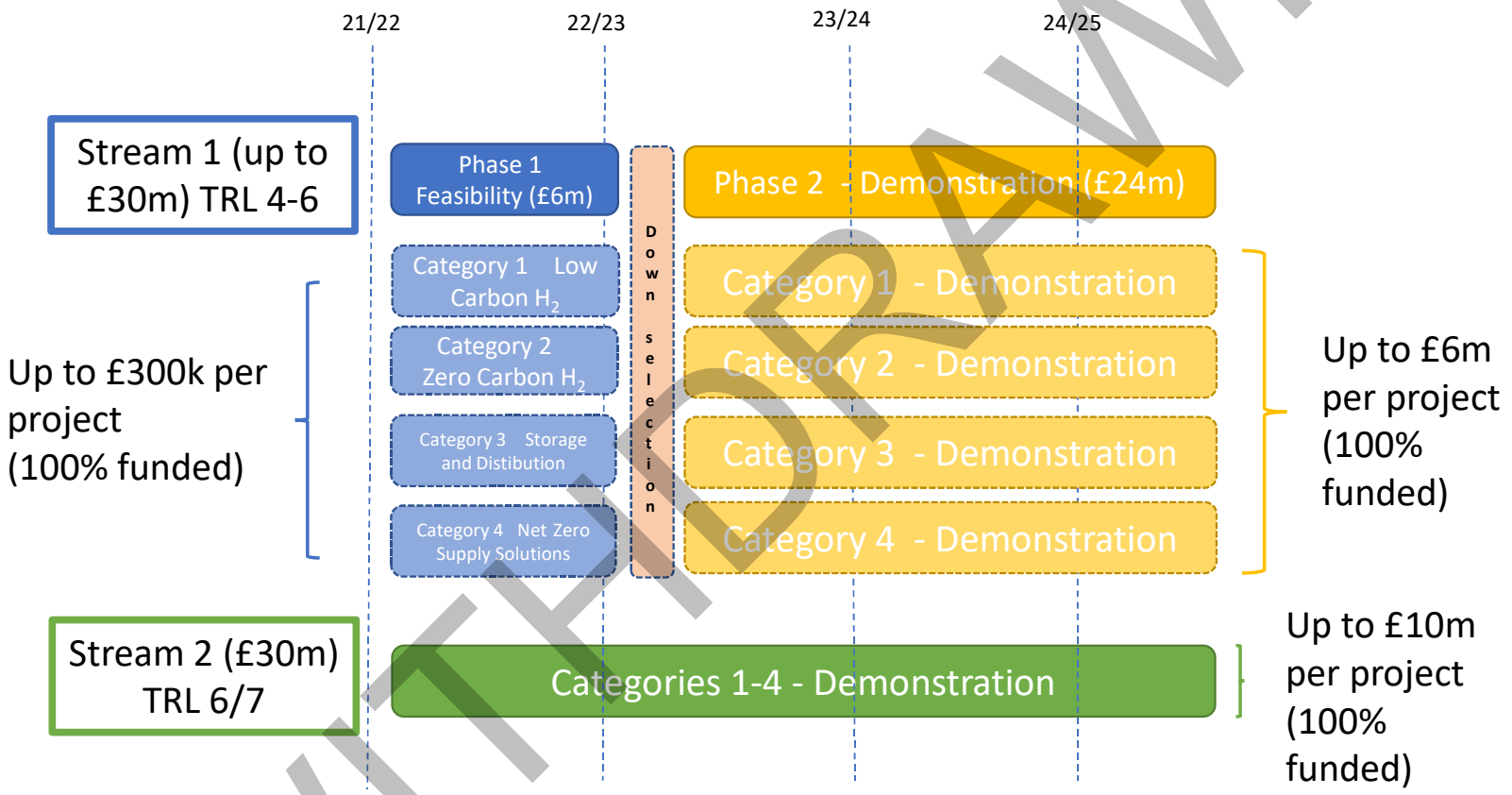
Competition Programme Manager

Science and Innovation for Climate and Energy

BEIS

8 June 2021

Overview



Next Steps

Stream 1 (Phase 1) and Stream 2 ITTs and application forms published **22nd June 2021** on competition webpage (gov.uk) and Contracts Finder

Applications will be entered via an online form; you **will need to register by 2nd August 2021** to gain access to the online form

Previous correspondence relating to Expressions of Interest or attendance today does not result in automatic registration

All applications must be submitted via the online application form with any supporting documents uploaded. **Further details will be provided in the ITT**

Applications are due in by **midday 9th August 2021**

Feedback to be provided by **end September 2021** (dependent on number of applications)

Award of contracts for Stream 1 Phase 1 and Stream 2 by **October 2021**

Questions

- The Q&A from this session will be published with the respective ITTs.
- There will be a further opportunity to ask questions following the publication of the ITTs on **22nd June 2021**.
- Please submit questions to nzip.hydrogen@beis.gov.uk. All questions should be submitted **by 12 noon BST, 12th July 2021**. Questions submitted after this date may not be answered.
- The questions submitted via email, which in our judgement, are of material significance will be addressed and published on the competition website.

Thank you for attending!